

Military Applications Summary Bulletins report on technology developments in Europe and the Middle East. The material contained in the Bulletins should in no way be construed as an endorsement of any product or service described therein.

Approved for public release; distribution unlimited

OFFICE OF NAVAL RESEARCH EUROPEAN OFFICE Box 39, FPO New York 09510-0700 Phone (AV)235-4131 (Comm) 409-4131

MASB 44-89

DTIC FILE COPY

6 September 1989

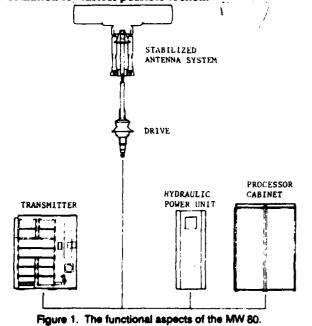
# MW 08 - Multi-Beam Air and Surface Surveillance Radar

Background. Signaal of the Netherlands has developed and is marketing the MW 08, a 3-D radar to be used for short to medium range surveillance, target acquisition, and tracking.

Description. MW 08 is a fully automatic detecting and tracking radar. It is designed to counter threats from aircraft and low flying antiship missiles. It can also deal with the high level missile threat.

Functional Aspects. MW 08 operates in the 5-cm band using one antenna for both transmitting and receiving (see Figure 1). The antenna is an array, consisting of 8 stripline antennas. The received radar energy is processed by 8 receiver channels. These channels come together in the beam forming network, in which 8 virtual beams are formed. From this beam pattern, 6 beams are used for the elevation coverage of 0-70 degrees.

MW 08's output signals of the beam former are further handled by FFT and plot processors for target speed information, clutter rejection, and jamming suppression. A general purpose computer handles target track initiation, and tracking. Tracking data are transferred to the command and control systems with 3-D target information for fastest possible lockon.



PERFORMANCE DATA

Maximum free-space, single-scan detection range, at 80% probability of detection 0.1 m<sup>2</sup> target SW 3

17 km

1 m <sup>2</sup> target SW 1	27 km
2 m <sup>2</sup> target SW 1	32 km
Target speed	up to Mach 4
Resolution	
in bearing	<b>2°</b>
in range	<b>90</b> m .
Tracking accuracy	
In bearing	0.25°
In range	40 m
in elevation	1.2°
Tracking capacity	·. ·
Air targets	20 (basic configuration)
Surface targets	8 (basic configuration)

ECCM and anticlutter facilities:

Fully coherent chain

Broadband frequency operation with the possibility of agility from

2 (gun-fire control accuracy)

burst to burst

Surface targets

High RF power output

Automatic RF and PRF selection

Very low antenna side lobes, both on transmission and reception

3-D radar featuring six reception pencil beams

Doppler FFT processing

Pulse compression

Automatic thresholding of clutter and jamming

Automatic setting of radar parameters such as AGC and STC

Sector emission capability

## **TECHNICAL DATA**

Transmitting/receiving antenna

Type	stripline array
Number of striplines	8
Polarization	horizontal
Horizontal beamwidth	2°
Elevation coverage	70°
Number of pencil beams	6
Vertical width of pencil beams	12°
Side-lobe level (azimuth)	-40 db rms

Antenna platform

27 rpm **Rotation speed** ± 30° Roll range Pitch range ± 12° Stabilization hydraulic

Transmitter

Type coherent/TWT/pulse compression Peak power 50 kw G-band RF frequency Transmission modes Fixed frequency, frequency agility over burst, sector scan

Receivers and processors

Noise figure 4.5 db Compressed pulse length عبر 0.6 by FFT Beam formation STC Video processing

automatic

doppler FFT, plot and track pro. Jesing

**DIMENSIONS AND WEIGHTS** 

	Width mm	Height mm	Depth mm	Weight kg
Antenna system	2488	1160		430
Drive				90
Transmitter	1470	1846	658	700
Processor cabinet	1192	1925	766	450
Hydraulic power unit	650	1900	850	450
Heat exchanger	180	225	814	48
Waveguide drier	670	687	650	83

OFFICE OF NAVAL RESEARCH EUROPEAN OFFICE BOX 39 FPO NEW YORK 09510-0700

## **POWER REQUIREMENTS**

Main equipment	440V	60 Hz	3 phase	9 kVA	
	115V	60 Hz	3 phase	14 kVA	
Anti-condensation heating	115V	60 Hz	1 phase	0.8 kVA	
Anti-los heating	115V	60 Hz	3 phase	1.5 kVA	
Ship's cooling water	14 liters/min (max. temp. 9°C)				

### **ENVIRONMENTAL CONDITIONS**

above deck -30° to +55°C Ambient temperatures below deck 0° to +50°C up to 80% at 40°C Relative humidity

For further information contact Hollandse Signaalapparaten B.V., P.O. Box 42, 7550 GD Hengelo Ov, The Netherlands. Telephone +31 74 488111, Telex 44310 sign nl.

ONREUR point of contact: CDR R. H. Taylor, USN, Undersea Systems Officer.

Distribution: Standard **Submarine** Surface Ship Surface Weapons

